

IN THE CLAIMS:

Please cancel claim 1 without prejudice or disclaimer in favor of the new claims presented below. Applicants reserve the right to pursue unclaimed subject matter in related continuing or divisional applications.

Claims 1-57 (canceled)

Claim 58 (new): A preselected array of oligonucleotides, the array comprising a spatially defined pattern of oligonucleotide probe sets on a solid support wherein each oligonucleotide probe set comprises a plurality of individual nucleic acid probes all with the same nucleotide sequence, wherein:

- (a) the array contains more than 1000 different probes per cm²;
- (b) the probes are selected to have a substantially similar melting temperature;
- (c) each probe set hybridizes to one target tag nucleic acid under stringent hybridization conditions;
- (d) the probes have substantially uniform hybridization properties and do not cross-hybridize with non-target target tag nucleic acids;
- (e) each probe set on the array differs from every other probe set on the array by the arrangement of at least two nucleotides; and
- (f) the array contains probe sets complementary to at least 100 tag nucleic acids.

Claim 59 (new): The array of claim 58, wherein the melting temperatures of the probes are within plus or minus 7°C.

Claim 60 (new): The array of claim 58, wherein the ratio of G+C bases in each probe is substantially identical.

Claim 61 (new): The array of claim 60, wherein the G+C ratio does not vary by more than 5%.

Claim 62 (new): The array of claim 58, wherein each probe set on the array differs from every other probe set on the array by about 5 nucleotides out of 20 when aligned for maximal correspondence.

Claim 63 (new): The array of claim 58, wherein the probes are from about 8 to 150 nucleotides.

Claim 64 (new): The array of claim 63, wherein the probes are between about 10 and 100 nucleotides.

Claim 65 (new): The array of claim 64, wherein the probes are between about 15 and 30 nucleotides.

Claim 66 (new): The array of claim 65, wherein the probes are about 20 nucleotides.

Claim 67 (new): The array of claim 58, wherein the array contains more than 10,000 probe sets per cm².

Claim 68 (new): The array of claim 58, wherein the array contains probes complementary to between about 100 and about 100,000 tag nucleic acids.

Claim 69 (new): The array of claim 68, wherein the array contains probes complementary to between about 5,000 and about 14,000 tag nucleic acids.

Claim 70 (new): The array of claim 69, wherein the array contains probes complementary to between about 500 and about 15,000 tag nucleic acids.

Claim 71 (new): The array of claim 70, wherein the array contains probes complementary to between about 8,000 and about 9,000 tag nucleic acids.

Claim 72 (new): The array of claim 58, wherein said array comprises a control probe.

Claim 73 (new): The array of claim 58, wherein said solid support is selected from the group consisting of slides, beads, polymeric chips, particles, strands, precipitates, gels, sheets, tubing, spheres, containers, capillaries, pads, slices, films and plates.

Claim 74 (new): A kit comprising the array of claim 58.